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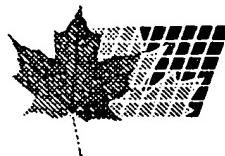
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(21)(A1) **2,277,728**  
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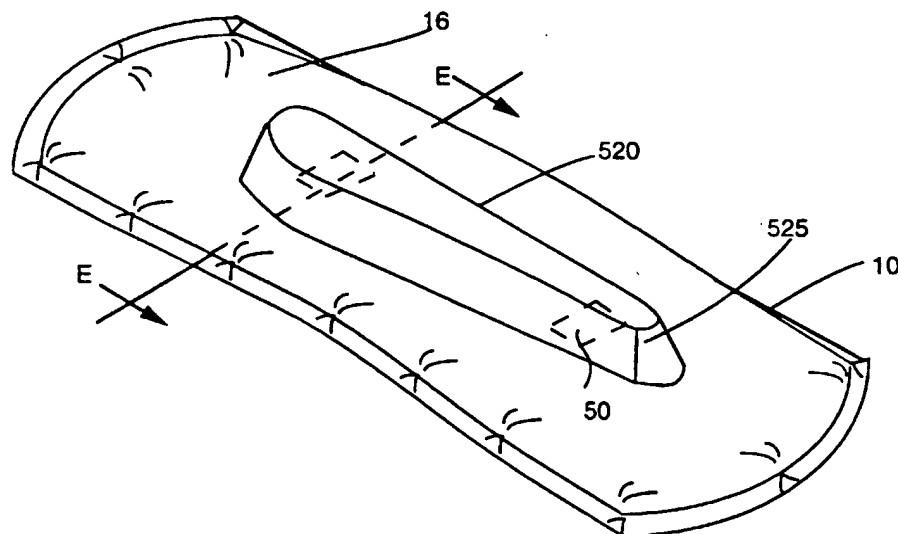
(72) DRAGNEA, RALUCA, CA

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(54) **SERViette HYGIENIQUE INTERLABIALE EPOUSANT LA  
FORME ANATOMIQUE**

(54) **ANATOMICALLY SHAPED INTERLABIAL PAD AND  
SANITARY NAPKIN**



(57) An absorbent hygiene article comprised of an absorbent sanitary pad and a soft absorbent anatomically conformable interlabial pad is disclosed. The interlabial pad intercepts and absorbs body fluids and conducts the excess fluid to a conventional sanitary pad.



## **ABSTRACT**

**Application No.: 2,277,728**

**Owner: Dragnea, Raluca**

**Title: Anatomically Shaped Interlabial Pad and Sanitary Napkin**

An absorbent hygiene article comprised of an absorbent sanitary pad and a soft absorbent anatomically conformable interlabial pad is disclosed. The interlabial pad intercepts and absorbs body fluids and conducts the excess fluid to a conventional sanitary pad.



**ANATOMICALLY SHAPED INTERLABIAL PAD AND SANITARY NAPKIN****Field of the invention**

5        This invention relates to sanitary articles and in particular to an anatomically shaped interlabial pad and sanitary napkin.

**Field of the invention**

10      There have been a number of attempts to improve the design of sanitary napkins, but so far these attempts were not able to totally prevent leakage and meet the user's comfort requirements at the same time.

15      Although some solutions of the prior art improve the contact between the pad and the body when the person wearing the pad is in a vertical position, they do not adequately protect a person in a horizontal position. In some cases, the solutions compromise the comfort of the wearer, especially in the posterior area of contact between the sanitary napkin and the body. Persons with a history of hemorrhoids have significant discomfort associated with the wear of some sanitary napkins.

20      Some solutions provide the sanitary napkin with a tampon, attached about the center of the napkin. Such a solution is, for example, disclosed in US Patent No. 5,290,262 (Vukos et al.) issued on March 1, 1994 and assigned to Kimberly-Clark Corporation. However, such a design may cause a major discomfort to the user due to shifts that could occur during usage. Furthermore, this solution may result in breeding of bacteria inside the vagina.

25      There has been a lot of effort put into the design of sanitary napkins to reduce or eliminate the possibility of peripheral leakage. Leakage may occur because of a fluid flow beyond the absorption capacity of the napkin. Leakage may also occur because of the napkin shifting during usage or when the use is in the supine position.

30      The sanitary napkins disclosed in US Patent 5,454,802 (Lindquist et al.) issued on October 3, 1995 and assigned to Molnlycke AB has the disadvantage of creating a friction effect with the sensitive urogenital parts, of not being anatomically comfortable and being bulky. This tampon can also shift during usage and is likely to permit leakage when the user is in a horizontal position.

The sanitary napkin disclosed in US Patent No. 5,545,156 (DiPalma et al.) issued on August 13, 1996 and assigned to Kimberly-Clark Corporation does not offer sufficient body contact and therefore is subject to leakage.

5       The sanitary napkin disclosed in US Patent No. 5,057,096 (Faglione) issued on October 15, 1991 is not anatomically conformable and may also result in leakage.

#### SUMMARY OF THE INVENTION

10      It is an object of the present invention to provide a sanitary napkin for absorbing body fluids such as menses, blood, urine, and other fluids, which alleviates totally or in part the drawbacks of the prior art napkins.

15      It is another object of the invention to provide a sanitary napkin that is anatomically shaped for user's comfort.

Still another object of the invention is to provide a sanitary napkin of a design that minimizes the leakage when the user is in a prone or a supine position.

20      Accordingly, the invention provides for a sanitary article comprising: a core of an absorbent material, shaped to anatomically fit the interlabial zone, the core defining a base region and a tip region opposed to the base region; a liquid permeable cover for enclosing the core to form an interlabial pad; and first adhesive means on the base. The sanitary article further comprises a wicking layer arranged about the core under the cover, except the base region, for keeping moisture away from the cover and inside the core.

25      The sanitary article has a trapezoidal, rectangular, or triangular cross-section.

30      Advantageously, the device according to the invention can be used as, or in conjunction with an incontinence guard, as a sanitary napkin, as a diaper, training pant, or the like.

35      Another advantage of the device of the invention is that it provides a larger surface of absorption in the region of high concentration of fluid. This is obtained by using the sanitary napkin in conjunction with an interlabial pad which increases the surface of absorption for collecting the body fluids.

Still another advantage of the device of this invention is that it does not inconvenience the wearer; the interlabial pad has an anatomically fit shape and also, is loosely connected to the sanitary napkin.

5       The use of the interlabial pad with a sanitary napkin as described in the present invention keeps the wearer much cleaner than by using a sanitary napkin alone.

10      Another important advantage of the sanitary article of this invention is the ease of manufacture. Most of the prior art sanitary articles require redesigning of the napkin to include components that increase the area of contact between the article and the body. On the other hand, the article according to this invention offers a solution that does not involve redesign of the napkin, as the interlabial pad can be used with a conventional sanitary napkin or panty liner.

15

#### BRIEF DESCRIPTION OF THE DRAWINGS

20      Other objects and advantages of the invention will become apparent from the following description, made in conjunction with the appended drawings, where:

25

**Figure 1A** is a perspective view of the sanitary napkin according to one embodiment of the invention;

**Figure 1B** is a cross-section of the sanitary napkin of Figure 1A, taken along lines A-A;

**Figure 2A** is a perspective view of the sanitary napkin according to another embodiment of the invention;

**Figure 2B** is a cross-section of the sanitary napkin of Figure 2A, taken along lines B-B;

30

**Figure 3A** is a perspective view of the sanitary napkin according to one further embodiment of the invention;

**Figure 3B** is a cross-section of the sanitary napkin of Figure 3A, taken along lines C-C;

**Figure 4A** is a perspective view of the sanitary napkin according to still another embodiment of the invention;

35

**Figure 4B** is a cross-section of the sanitary napkin of Figure 4A, taken along lines D-D;

5           **Figure 5A** is a perspective view of the sanitary napkin according to yet another embodiment of the invention;

10          **Figure 5B** is a cross-section of the sanitary napkin of Figure 5A, taken along lines E-E;

15          **Figure 6A** is a perspective view of the sanitary napkin according to another embodiment of the invention;

20          **Figure 6B** is a cross-section of the sanitary napkin of Figure 6A, taken along lines F-F;

25          **Figure 7A** is a perspective view of the sanitary napkin according to yet another embodiment of the invention;

30          **Figure 7B** is a cross-section of the sanitary napkin of Figure 7A, taken along lines G-G;

35          **Figure 8A** is a perspective view of the sanitary napkin according to still another embodiment of the invention;

40          **Figure 8B** is a cross-section of the sanitary napkin of Figure 8A, taken along lines H-H;

45          **Figure 9A** is a perspective view of the sanitary napkin according to yet another embodiment of the invention;

50          **Figure 9B** is a cross-section of the sanitary napkin of Figure 9A, taken along lines I-I;

55          **Figure 10A** is a front view of a disposable bag for the sanitary article, with the flap closed; and

60          **Figure 10B** is a front view of a disposable bag for the sanitary article with the flap open.

#### 25          **DESCRIPTION OF THE PREFERRED EMBODIMENT**

30          The present invention comprises an anatomically shaped interlabial pad designed for close body contact and means for absorbing and conducting the excess fluid to an associated sanitary napkin. The sanitary article comprises a soft absorbent material protected by a fluid-pervious cover. The interlabial pad will lie against the genitals of the wearer when the article is in use and will take the shape of the area. The interlabial pad provides increased absorption surface and hence eliminates the possibility of leakage. The associated sanitary napkin could be included in the same cover.

In embodiments where the anatomically shaped interlabial pad has its own cover, it is used with a separate sanitary napkin.

The anatomically shaped interlabial pad absorbs an important part of the fluid and conducts the excess fluid to the sanitary napkin. The size of the sanitary napkin can be reduced since there is no danger of peripheral leakage. This has the added advantage of resulting in less waste and being more discrete in appearance. The wearer could even use the interlabial pad with panty liners when the fluid flow is reduced.

In instances where the anatomically shaped interlabial pad and the sanitary napkin have separate covers, the user may need and decide to replace the interlabial pad more often than the sanitary napkin, again resulting in less waist. The interlabial pad is held in place through close body contact and it is attached loosely to the sanitary napkin via adhesive surfaces. This allows the interlabial pad to stay in place even when the sanitary napkin shifts during usage. This design also provides for increased comfort as it reduces friction with the sensitive urogenital parts.

Figure 1A illustrates a perspective view of a first embodiment of the invention, showing a sanitary napkin 10 and an interlabial pad 20, having separate covers, 16 and 25, respectively. Figure 1B illustrates a cross-section of the sanitary article of Figure 1A along lines A-A. In this embodiment, pad 20 has a trapezoidal cross-section. Pad 20 is attached with the large base to sanitary pad 10, using an adhesive surface shown at 50.

As shown in Figure 1B, the interlabial pad 20 comprises a soft absorbent core 40 enclosed in a liquid permeable cover 25. The liquid permeable cover 25 is made of materials typically used to manufacture covers in sanitary pads. Such materials can be woven or non-woven material, spunbound material, tissue, or finely perforated film webs. For example, materials suitable for the cover are spunlaced polyester, bonded carded webs of polyester, polypropylene, polyolefins, polyethylene, nylon or composite materials

The density of the absorbent core 40 of interlabial pad 20 is lower than the density of the absorbent material 14 of sanitary napkin 10, to promote flow of excess fluid from pad 20 to sanitary napkin 10. The density of the absorbent core should be low enough to ensure flexibility of the interlabial pad and consequently ensuring comfort. During usage, the

interlabial pad will take the shape of the area of contact and therefore prevent peripheral leakage.

5 Absorbent core 40 is comprised of loosely fit absorbent fibers, and is preferably made of one or more materials that combined are hydrophilic, conformable and compressible. Such material are cotton fibers, wood pulp fluff fibers, bleached or unbleached cellulose, modified cellulose, cellulose sponge, rayon fibers, polyester fibers, polymer foam, vegetable pulp, polyurethane, polyacrylates, polypropylene microfibers, polymeric microfibers, and the like.

10 The absorbent core 40 is surrounded about the lateral surface and the top surface by an optional wicking layer 30, designed to keep the moisture away from the body. Wicking layer 30 is made of a material with little absorption capability. The function of the wicking layer is to distribute the body fluid across the surface of the absorbent core. Materials  
15 appropriate for the wicking layer are blends of polyester and rayon, polymeric fiber, airformed webs of polyester, rayon or polypropylene, or the like.

20 As indicated above, the interlabial pad can be attached to a host sanitary napkin via complementary adhesive surfaces 50 illustrated in phantom lines on Figure 1A and also shown intuitively on Figure 1B by line 50. These surfaces are provided on the pad 20 so as to provide a secure attachment of the pad to the napkin. The adhesive surfaces are covered  
25 with protective paper during storage of the sanitary article, which is removed before the interlabial pad is used. The adhesive surfaces are pressure sensitive adhesive.

Without intending to be limited to a specific dimension, the  
30 interlabial pad is about 20 to 200mm long, preferably 65mm to 90mm. The height is between 5 to 40mm, preferably 20mm, and the width is between 5 to 40mm, preferably 10mm to 15mm in the widest area. The height of pad 20 is related to the height of the sanitary napkin or panty liner that is used with it. Another factor in determining the height is the density of the absorbent core.

The wearer will place the interlabial pad in close contact with the vaginal orifice, the urethral orifice, and optionally, the clitoris. The  
35 associated sanitary pad will be placed next and will be loosely attached to the pad base or body facing cover 16 via the adhesive surfaces 50. This

allows the pad to stay in place even when the sanitary napkin shifts during usage.

The sanitary pad 10 illustrated in Figures 1A and 1B has an hour glass configuration but it can have other shapes, as well known. Such shapes could be rectangular, oval, dogbone and the like. The sanitary napkin is made of an optional liquid permeable, body-facing cover 16, an absorbent core 14 and a garment facing liquid impermeable backing sheet 12.

The absorbent core 14 is made of materials typically used to manufacture sanitary pads. Acceptable materials are a composite of absorbent or super-absorbent materials such as cellulose fluff, wood pulp fibers, cellulose sponge, polyurethane, cotton fibers, modified cellulose, rayon fibers, polyester fibers, polymer foam, vegetable pulp, polyacrylates, polypropylene microfibers, polymeric microfibers and the like.

The backing sheet 12 is made of spunbonded non-woven material with bearing a polymeric film or the like.

Without intending to be limited to a specific dimension, the sanitary napkin is between 100mm to 300mm long, preferably 175mm. The width of the napkin 10 is between 40 to 175mm, preferably 60mm.

Figure 2A illustrates a perspective view of a second embodiment of the invention. Here, the interlabial pad 220 has a constant width, the attachment basis and sanitary napkin 10 being fixed with adhesive means 50, as in the first embodiment. The tip of pad 220 has rounded edges for added comfort.

Figure 2B shows a cross-section along line B-B in Figure 2A, illustrating how pad 220 is attached to sanitary napkin 10.

Figures 3A and 3B illustrate a third embodiment of the invention with a rectangular pad 320 and sanitary napkin 10 having separate covers 325 and respectively 16. As in the previous embodiments, pad 320 comprises a liquid-permeable cover 325 surrounding a soft absorbent core 40. The pad can be attached to a host sanitary napkin 10 via the adhesive surfaces illustrated in phantom lines at 50. The absorbent core 40 is surrounded by an optional wicking layer 30 designed to keep the moisture away from the body.

Figures 4A and 4B show a further embodiment of the invention, in perspective and cross-sectional view, respectively. Here, pad 420 has a

triangular cross-section, and the pad and the sanitary napkin have again separate covers 425 and 16, respectively. Cover 425 of the pad is liquid-permeable, and surrounds a soft absorbent core 40. The pad can be attached to a host napkin 10 via the adhesive surfaces 50. Again, the absorbent core 40 is optionally surrounded by a wicking layer 30 designed to keep moisture away from the body.

Figures 5A and 5B show another embodiment of the invention, in perspective and cross-sectional view. Here, pad 520 has an oval shape with a trapezoidal cross-section wider at one end, and the pad and the sanitary napkin have again separate covers 525 and 16, respectively. Cover 525 of the pad is liquid permeable, and surrounds a soft absorbent core 40. The pad can be attached to a host napkin 10 via the adhesive surfaces 50. Again, the absorbent core 40 is optionally surrounded by a wicking layer 30 designed to keep moisture away from the body.

Figures 6A and 6B show an embodiment where pad 620 and sanitary napkin 10 are unitary and comprised under a unique cover 60. Pad 620 has a trapezoidal cross-section in this embodiment. Casing 60 covers both pad 620 and sanitary napkin 610, forming a unitary sanitary article 610. Cover 60 is permeable to liquids, while pad core 40 is comprised of a soft absorbent material. Core 40 is surrounded by an optional wicking layer 30 designed to keep moisture away from the body. Sanitary article 610 also has a garment facing liquid impermeable backing sheet 12. Sanitary article 610 can be attached to the garment along an adhesive surface 90.

A seventh embodiment of the invention is illustrated in Figures 7A, which is a perspective view of the sanitary article 710, and in Figure 7B, which is a cross-section of the sanitary article 710 of Figure 7A, taken along lines G-G. The cross-section of pad 720 is trapezoidal, casing 60 covers both pad 720 and napkin 10. The pad comprises in this embodiment a non-absorbent interlabial core 100 and the napkin comprises an absorbent core 14. The soft non-absorbent material 100 intercepts body fluids and transfers same to the absorbent pad 14, without substantial retention of fluid. The sanitary article 710 is also provided with a garment facing liquid impermeable backing sheet 12, and can be attached to the garment with an adhesive surface 90.

Another embodiment of the invention is shown and disclosed next in connection with Figures 8A, which is a perspective view of the sanitary napkin according to yet another embodiment of the invention, and Figure 8B, which is a cross-section of the sanitary napkin of Figure 8A, taken along lines H-H. Sanitary article 810 comprises a liquid permeable bodyfacing cover 60 surrounding a soft absorbent core 40 and an absorbent core 814. Core 40 is surrounded optionally by a wicking layer 30 designed to keep moisture away from the body. Pad 810 also has a garment facing liquid impermeable backing sheet 12, and can be attached to the garment with adhesive surfaces 855.

Figures 9A and 9B show a further embodiment of the invention, in perspective and cross-sectional view, respectively. Here, pad 920 has an oval shape with a trapezoidal cross-section wider at one end, and the pad and the sanitary napkin have separate covers 925 and 16, respectively. Interlabial pad 920 includes a string 970 that is used to pull out the interlabial pad at the end of its usage. Cover 925 of the pad is liquid-permeable, and surrounds a soft absorbent core 40. The pad can be attached to a host napkin 10 via the adhesive surfaces 50. The adhesive surfaces 50 are optional since the string 970 can be used to remove the interlabial pad. Again, the absorbent core 40 is optionally surrounded by a wicking layer 30 designed to keep moisture away from the body. Pad 10 also has a garment facing liquid impermeable backing sheet 12.

Figure 10A is a front view of a disposable bag for the sanitary article. The bag comprises a pocket with the flap. Figure 10A shows the bag with the flap closed, while Figure 10B is a front view of the disposable bag for the sanitary article with the flap open.

**I CLAIM:**

- 5        1. A sanitary article comprising:  
            a core of an absorbent material, shaped to anatomically fit the  
            interlabial zone, said core defining a base region and a tip region  
            opposed to said base region;  
            a liquid permeable cover for enclosing said core to form an  
10        interlabial pad;  
            first adhesive means on said base.
- 15        2. A sanitary article as claimed in claim 1, further comprising a  
            wicking layer arranged about said core under said cover, except said  
            base region, for keeping moisture away from said cover and inside said  
            core.
- 20        3. A sanitary article as claimed in claim 1, having one of a  
            trapezoidal, rectangular, and triangular cross-section.
- 25        4. A sanitary article as claimed in claim 3, wherein said rectangular  
            cross-section presents rounded corners in said tip region.
- 30        5. A sanitary article as claimed in claim 1, wherein said core is  
            comprised of loosely fit absorbent fibers.
- 35        6. A sanitary article as claimed in claim 1, wherein said core is  
            comprised of loosely fit absorbent fibers of at least two materials that  
            combined are hydrophilic, conformable and compressible.
- 40        7. A sanitary article as claimed in claim 6, wherein said material is  
            one of cotton fibers, wood pulp fluff fibers, bleached cellulose,  
            unbleached cellulose, modified cellulose, cellulose sponge, rayon fibers,  
            polyester fibers, polymer foam, vegetable pulp, polyurethane,  
            polyacrylates, polypropylene microfibers, and polymeric microfibers.

8. A sanitary article as claimed in claim 1, wherein said liquid permeable cover is made of one of a woven material, a non-woven material, a spunbound material, a tissue, and a finely perforated film web.
- 5           9. A sanitary article as claimed in claim 8, wherein said material is one of spunlaced polyester, bonded carded webs of polyester, polypropylene, polyolefins, polyethylene, nylon and composite materials.
- 10          10. A sanitary article as claimed in claim 2, wherein said wicking layer is manufactured from a material with little absorption capacity, such as one of blends of polyester, rayon, a polymeric fiber, airformed webs of polyester, and polypropylene.
- 15          11. A sanitary article as claimed in claim 1 further comprising:  
a sanitary napkin; and  
second adhesive means provided about the central region of said napkin for cooperatively engaging said first adhesive means.
- 20          12. A sanitary article comprising:  
an interlabial pad including a core of a first material, shaped to anatomically fit the interlabial zone, said core defining a base region and a tip region opposed to said base region;  
a sanitary napkin including a layer of a second material;  
a cover shaped to receive and support said interlabial pad with said base arranged on said napkin in the central region thereof.
- 25          13. A sanitary article as claimed in claim 12, wherein the liquid absorption capability of said first material is lower than the liquid absorption capability of said second absorbent material, to promote flow of excess fluid from said pad to said sanitary napkin.
- 30          14. A sanitary article as claimed in claim 12, wherein said first material is liquid impermeable and said second material is absorbent.
- 35          15. A sanitary article as claimed in claim 12, further comprising a wicking layer arranged about said core, except in said base region.

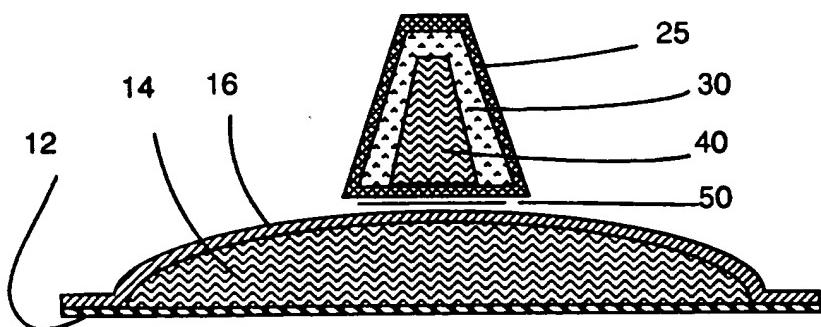
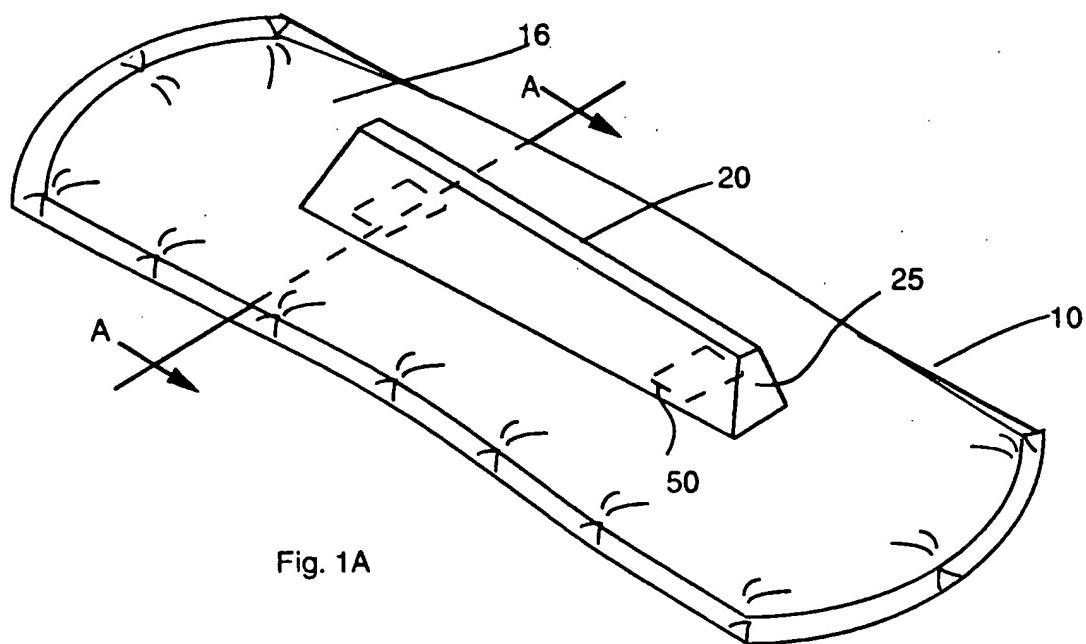
16. A sanitary article as claimed in claim 12, wherein the cross-section of said pad has one of a triangular, trapezoidal, rectangular shape.

5 17. A sanitary article as claimed in claim 16, wherein said rectangular cross-section presents rounded corners in said tip region.

10 18. A sanitary article as claimed in claim 3, wherein the cross-section of said pad is larger at one end.

19. A sanitary article as claimed in claim 12, wherein the cross-section of said pad is larger at one end.

15 20. A sanitary article as claimed in claim 1, that includes a string used to pull out the interlabial pad at the end of its usage.



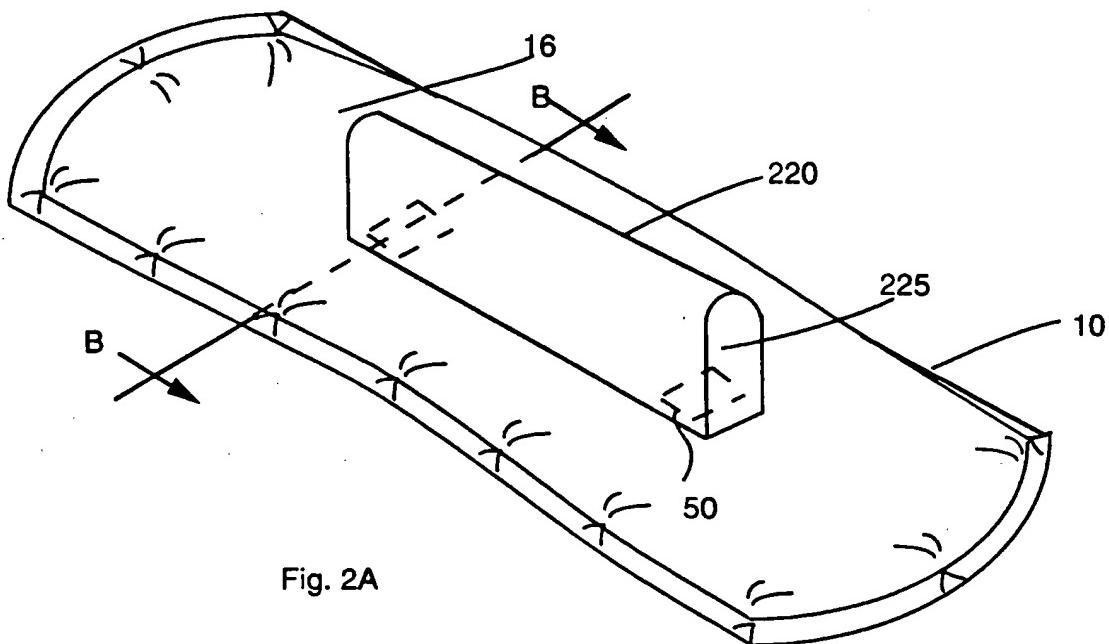


Fig. 2A

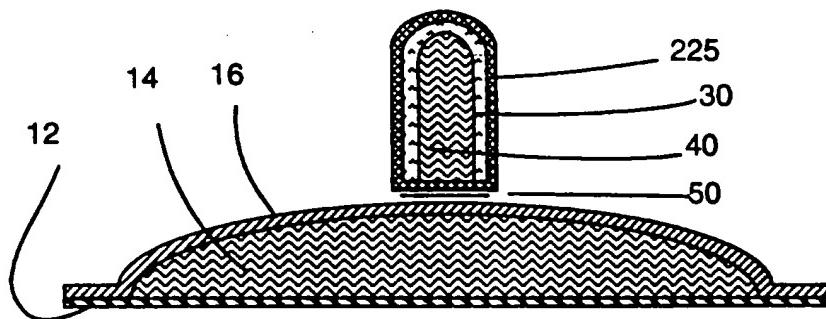
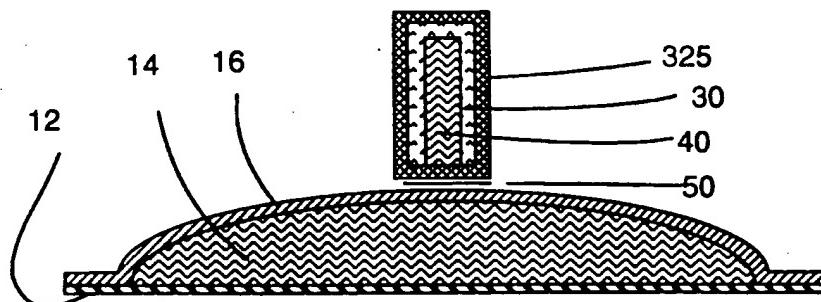
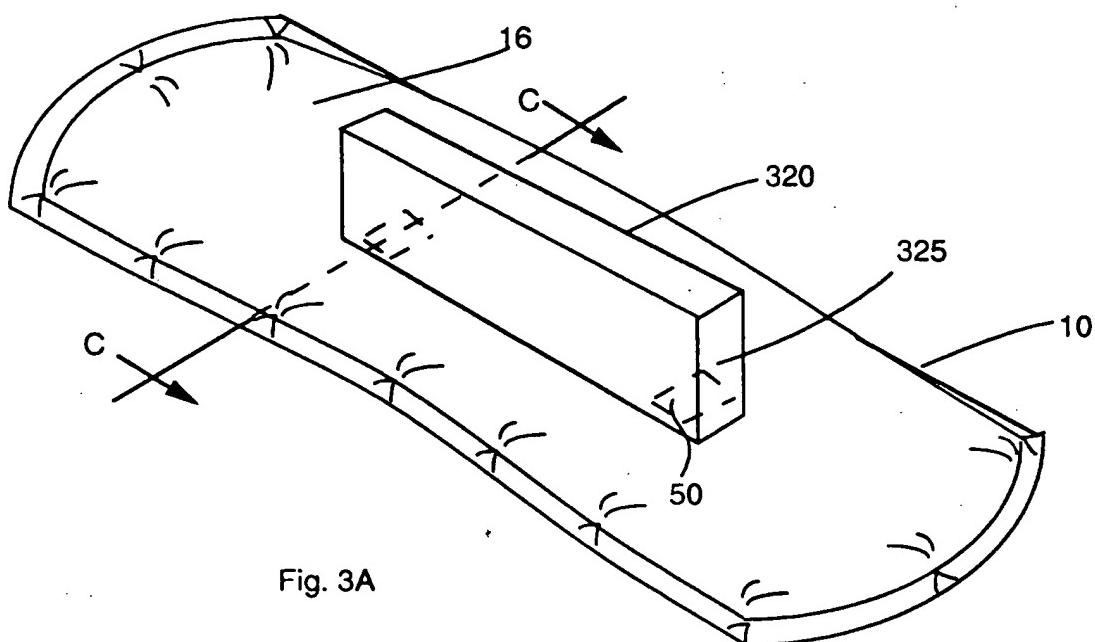


Fig. 2B



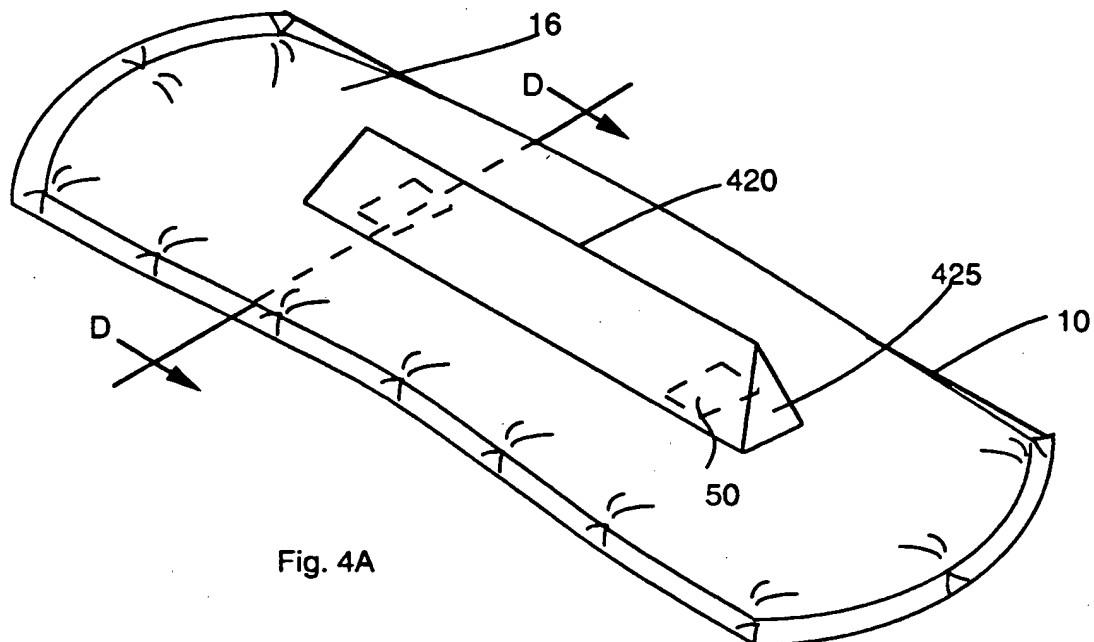


Fig. 4A

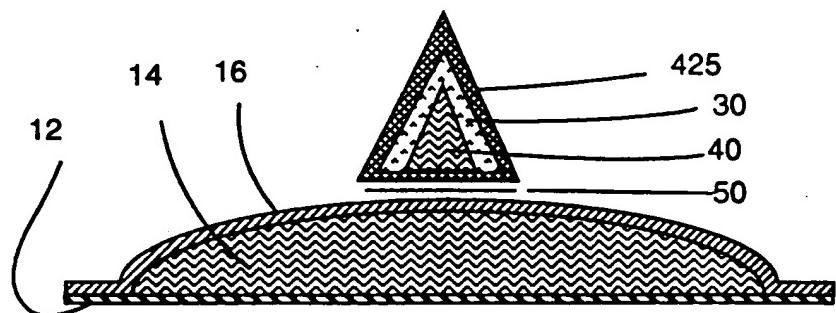


Fig. 4B

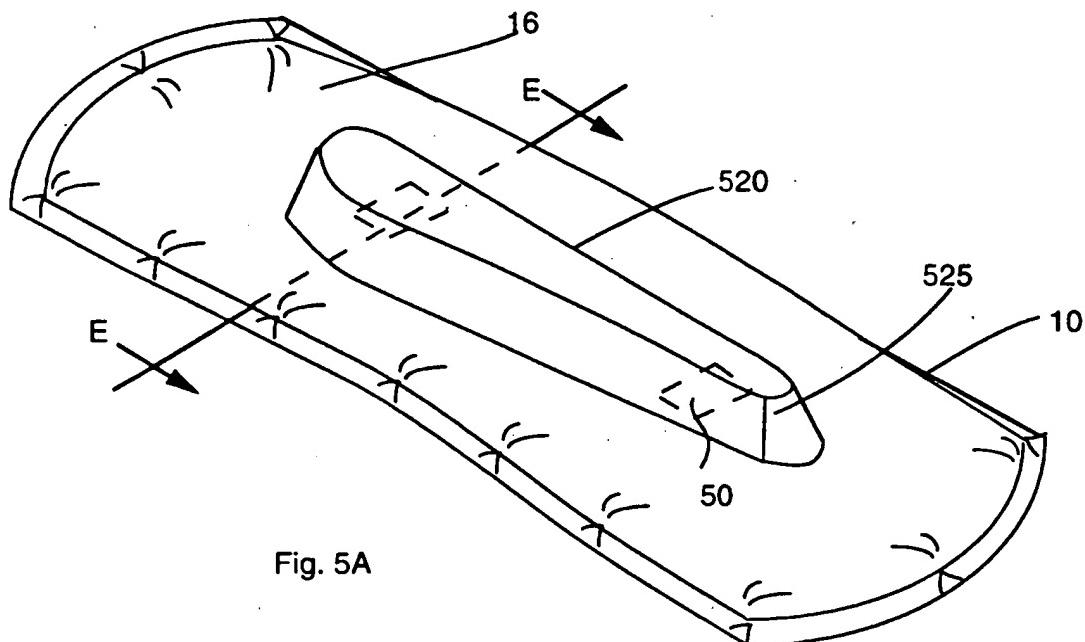


Fig. 5A

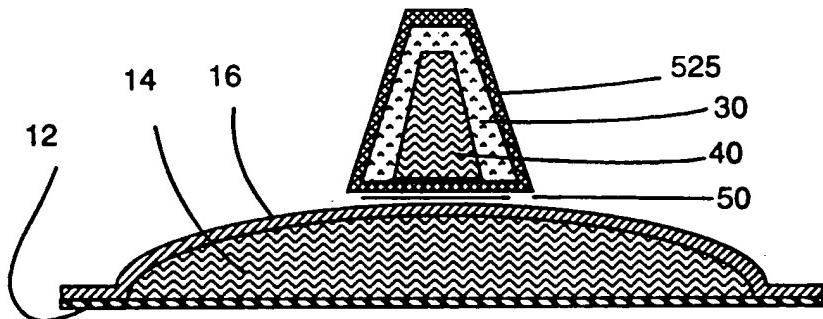
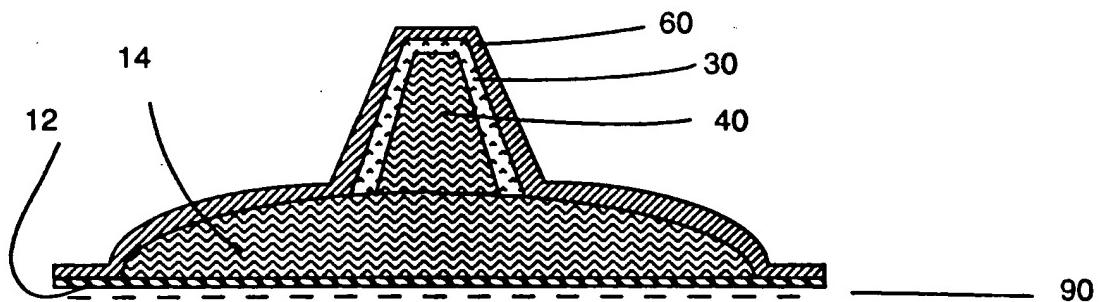
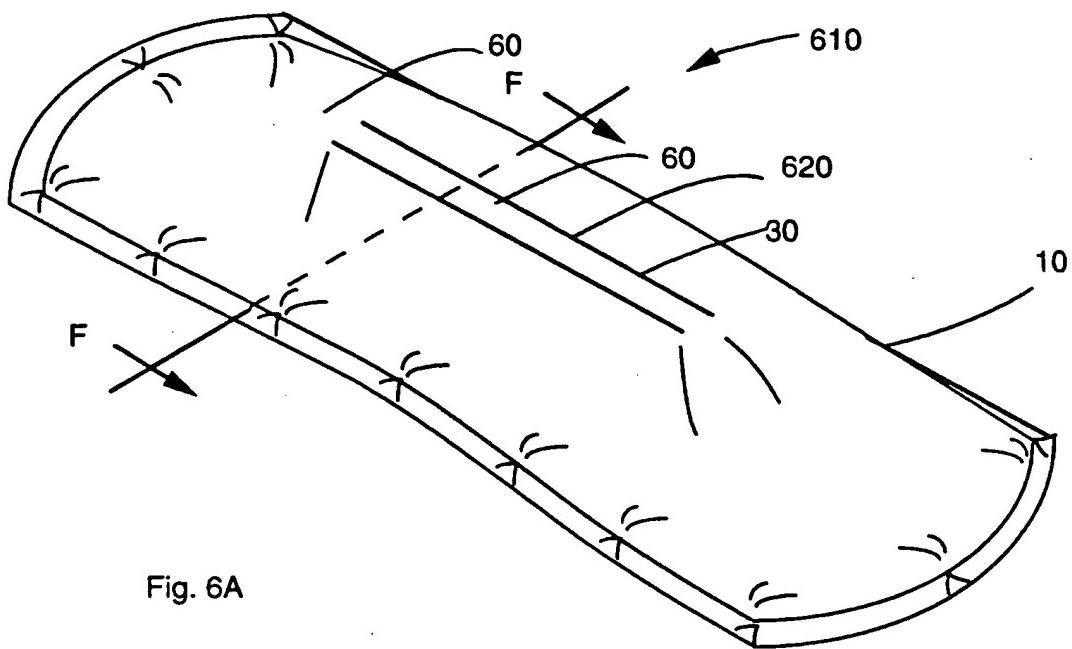
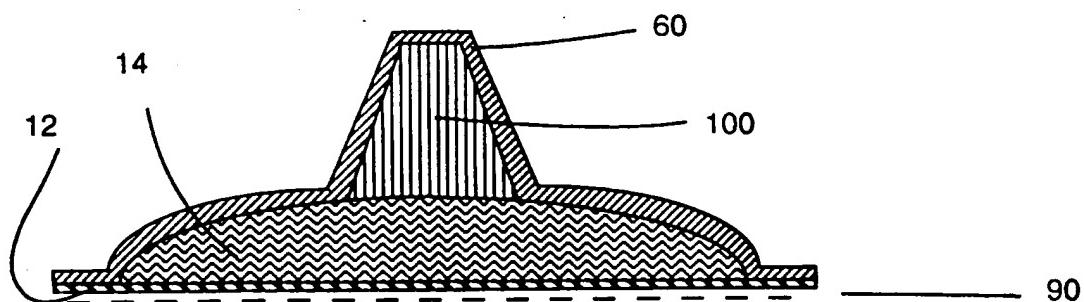
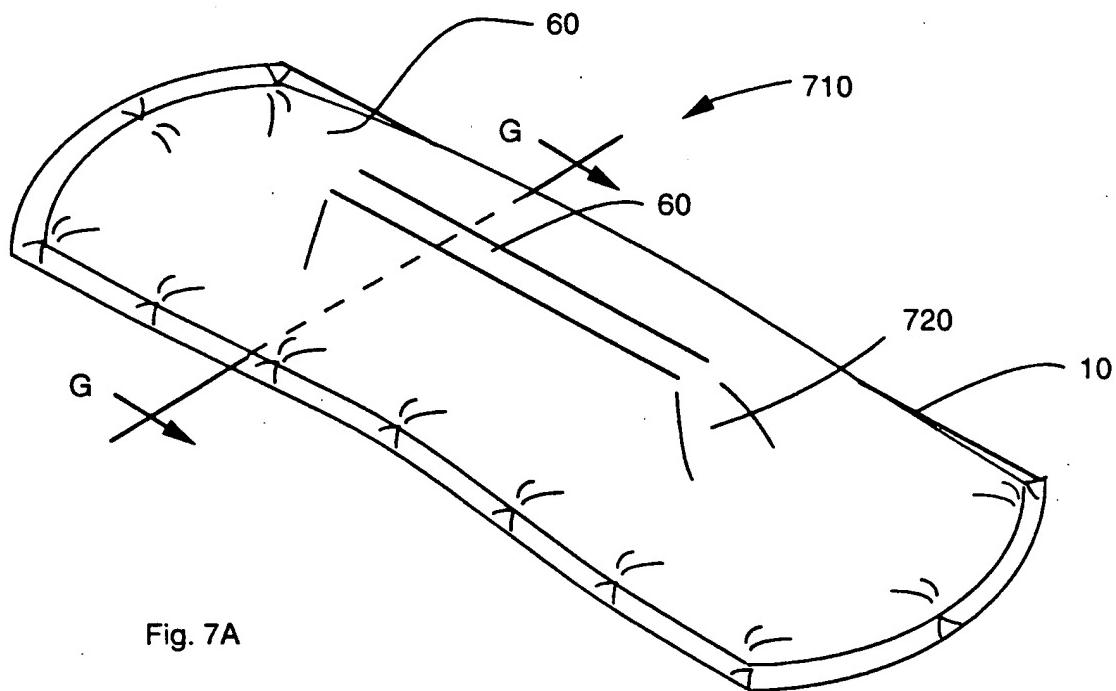


Fig. 5B





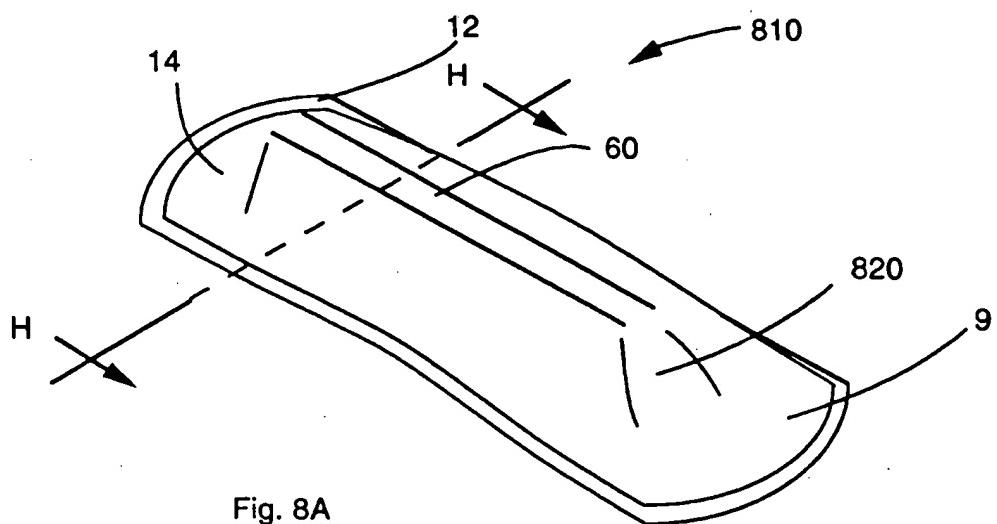


Fig. 8A

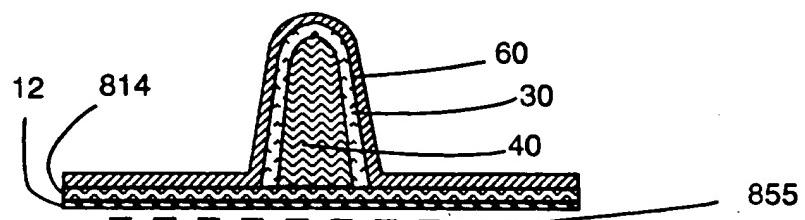


Fig. 8B

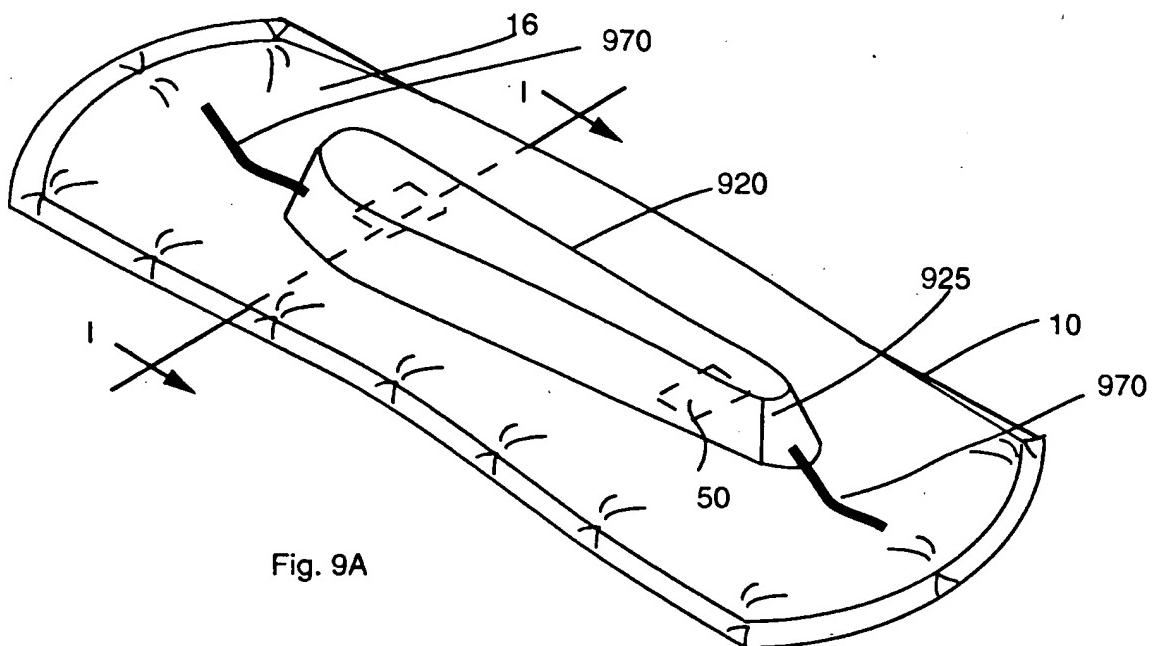


Fig. 9A

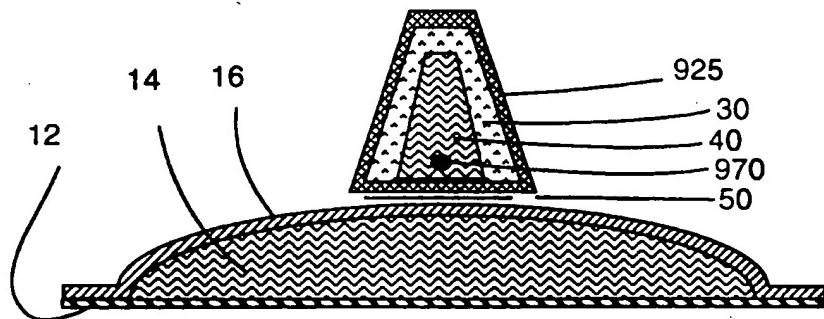


Fig. 9B

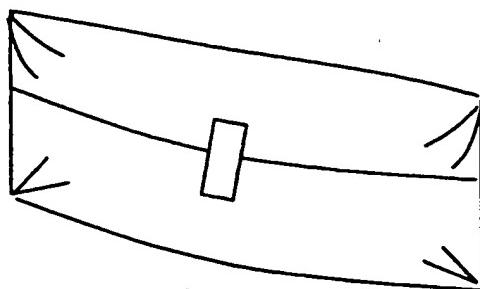


Fig. 10A

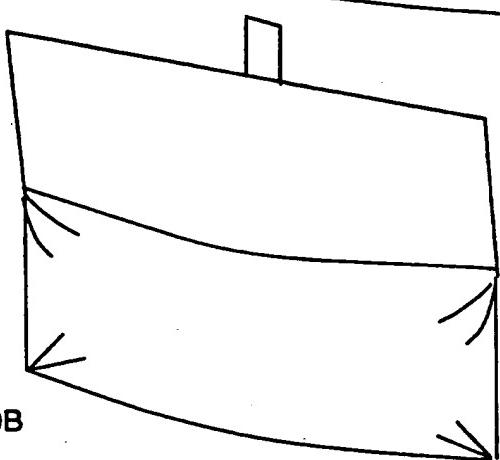


Fig. 10B